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Central Intelligence Agency

Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE
23 April 1985

Summit Issue:
Space Station Cooperation [redacted] 25X1

Summary

The European Space Agency (ESA) and the US National Aeronautics and Space Administration (NASA) are close to signing a memorandum of understanding (MOU) for joint participation in the US space station program discussed at last year's economic summit in London. The planned West European contribution is a space laboratory called Columbus, but negotiations have been complicated by concerns about technology transfer. West European governments are seeking greater exchange of technology than they received in past joint efforts--most notably Spacelab. Even if the MOU is signed later this month as planned, the issue of technology transfer is likely to remain unresolved and could affect West European participation in other proposed joint projects--especially the Strategic Defense Initiative (SDI). 25X1

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This memorandum was prepared by [redacted] Economic Issues Branch, Office of European Analysis, with a contribution by [redacted] Office of Scientific and Weapons Research. 25X1
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Attitudes of Major ESA Members

West European governments are united behind a strategy of cooperating with the United States to upgrade their space technology but are committed to pursuing independent projects of their own. Most West European leaders see applications for the space station in many areas and view participation with the United States as an inexpensive way of acquiring the latest space technology. Some governments believe this project could be a steppingstone on the road to an independent West European space station by the year 2000, but realize the expense would squeeze already tight budgets.

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For its part, ESA plans to develop a space laboratory called Columbus, which would be attached to the space station. Columbus would be used primarily for materials science and life sciences research and would be capable of joint operations with the space station as well as brief independent missions. Columbus is expected to cost approximately $2.4 billion. West Germany has pledged to fund 37.5 percent of the project, Italy 25 percent, and France and the United Kingdom 15 percent each.

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France, Western Europe's leader in space research, is not enthusiastic about participating in the space station, which it believes will divert ESA from pursuing an independent West European space program. France, however, agreed to help fund Columbus in exchange for West German support for Ariane 5--a heavy-lift launch vehicle--which it regards as ESA's highest priority. Paris also is urging ESA to approve its proposed Hermes spaceplane which could operate as a mini-shuttle and provide access to the space station. Although ESA postponed a decision on Hermes, France will continue the project in the hope that other members eventually will integrate it into ESA's plans.

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West Germany has taken the lead on Columbus as it did on Spacelab. Bonn has expressed a more positive attitude than Paris about the space station project. The West Germans believe that cooperation with the United States, in a framework allowing technological exchange, would give their industry familiarity with the most modern space technology. West Germany was key in the ESA move to postpone a decision on the Hermes spaceplane, which it decided not to support mainly because of the financial burden of the project. The West Germans believe that if the space station goes forward, Western Europe will be able to depend on the transport services of the US space shuttle for the first few years of the space station's operations.

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Italy and the **United Kingdom** also are seeking greater benefits from space research for their industries. Italy would be the second-largest participant, behind West Germany, in the

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Columbus project. Rome views space station participation as a way to develop technological expertise that complements rather than competes with US technology. The British have offered to take the lead on development of a space platform that would be used for astronomical observation and experiments that require a vibration-free environment. London is expanding its efforts in space research by setting up a National Space Center. The Italians and British are optimistic about participation in the space station, but favor a unified West European approach that would ensure technological exchange. 25X1

The Role ESA Wants to Play

ESA is seeking to be an equal partner with the United States in the space station rather than a subcontractor, a role it believes it has played in the past. ESA members particularly want to ensure that the arrangements for its participation in the project guarantee a multiyear commitment by Washington and access to pertinent technology. ESA, therefore, is taking a cautious, step-by-step approach to the space station that entails a two-year feasibility and design phase based on an MOU. The second phase of the program would be implemented by a series of treaties between the United States and ESA member nations that legally would tie them to cooperation on the building and application of the space station. ESA is trying to obtain the following arrangements: 25X1

-- Assurance of complete sharing of technology and information relevant to their contribution to the space station. 25X1

-- Guaranteed access to the space station, including the option of using their own transport vehicle. France favors a docking port for Hermes, a position ESA may support if it finds space shuttle scheduling unsatisfactory.

-- Reciprocal safeguarding of commercial proprietary data. ESA is likely to insist on the same protection for commercial data of West European companies that NASA is offering to US industry. ESA also may be reluctant to provide information NASA will request concerning West European cargos. 25X1

ESA's Ability to Protect Technology

ESA has a weak framework and lacks specific safeguards to keep sensitive information from leaking to the Soviet Bloc. Although the space station is not a military project, the Soviet Union almost certainly will try to acquire technology through ESA that has military applications. The most common method of disseminating sensitive documents in ESA is direct distribution 25X1

to scientists and engineers who, in turn, are personally responsible for the safekeeping of the documents. 25X1

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Outlook and Implications

Although agreeing to strengthen safeguards may not come easily, we believe West European governments do not wish to run the risk of alienating the United States and cutting itself off from possible future NASA-ESA projects. Even if ESA and NASA sign an MOU, however, the West Europeans are likely to push for as much tehnological information as possible within the limits of the agreement. This will probably lead to disagreements on the interpretation of the terms of cooperation. 25X1

If ESA and NASA fail to work out the technology transfer issue, West European doubts about possible cooperation with the United States on military space technology almost certainly will grow. Some West European leaders--most notably West German Chancellor Kohl--have given support to US research on the Strategic Defense Initiative (SDI) and view West European participation as a way to bolster their high technology industries and obtain valuable spinoff benefits. West European governments have responded to the US invitation to participate in SDI by stressing that technology sharing will be crucial for cooperation. Failure to reach agreement on the technology issue for a civil program like the space station almost certainly would jeopardize West European willingness to participate in SDI development. 25X1

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APPENDIX

ESA: A Brief Overview

The European Space Agency (ESA) was launched in 1975 as a successor organization to the European Space Research Organization (ESRO) to coordinate West European activities in space research.* Its budget last year amounted to $750 million, and the centerpiece of its activities is the Ariane series of launch vehicles. Thus far, Ariane launchers have deployed a total of 16 satellites and nine more are scheduled to be placed in orbit this year. Ariane is already a strong competitor of the US space shuttle and has acquired almost half the commercial satellite launching market. We believe that Ariane will have the capacity to increase this share significanty during the next decade with the development of the Ariane 5 heavy-lift launch vehicle. Araine 5 will increase payload capacity to 4000 kilograms from the 1500 kilogram capacity of Ariane 3. It will cost approximately $2 billion over the next ten years of which France has pledged 53 percent, West Germany 20, Italy 15, and the balance coming from other ESA members. In addition, ESA is working on a number of scientific research programs in space technology and plans to participate in NASA's mission to Saturn in the 1990s. 25X1

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Despite a long history of cooperation between the United States and West European nations in space research, recent ESA-NASA collaboration has been marked by stress and disagreement on the obligations of partnership. West Europeans view the space station against the background of past joint ventures with NASA, such as Spacelab and the International Solar-Polar Mission (ISPM). 25X1

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When the US space shuttle was in the planning phase, the West Europeans were hoping to build components of the shuttle itself and a separate orbital transfer vehicle called a space tug. The United States was concerned about allowing the West Europeans to build essential elements of the shuttle and about transferring advanced technology to them. NASA also became concerned about the safety of placing the space tug in the shuttle payload bay. Consequently, NASA and ESA settled on Spacelab, a more limited West European contribution to the space shuttle program. 25X1

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* ESA members include Belgium, Denmark, France, West Germany, Ireland, Italy, the Netherlands, Spain, Sweden, Switzerland, and the United Kingdom. 25X1

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The West Europeans believe that building Spacelab, a research and applications module, proved their technical capability. They contend the arrangements for joint operations allowed the United States to get most of the benefits of the project and reduced them to the role of subcontractor. The United States now owns Spacelab and, after participating in one free mission, ESA must pay NASA for future shuttle-Spacelab flights. [redacted] 25X1

West Europeans believe their limited role in the space shuttle project did not allow them to obtain much technology Now that ESA has a successful space program of its own, it is likely to press for more technological exchange in future joint projects. ESA feels that the United States reneged on the original Intergovernmental Agreement on Spacelab which the West Europeans believe committed the United States to procure additional space laboratories, components, and spares that substantially duplicate the design and capabilities of the first Spacelab from ESA. [redacted] 25X1

The West Europeans also are bitter about their experience with the solar-polar project. As part of ISPM, NASA and ESA agreed to build one spacecraft each. After Western Europe invested heavily in the project, the United States canceled its vehicle in 1981, severely hampering the project. [redacted] 25X1

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